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PETROLOGICAL ABSTRACTS AND REVIEWS

EDITED BY ALBERT JOHANSEN

LACROIX, A. "Les roches grenues, intrusives dans les brèches basaltiques de la Réunion: leur importance pour l'interprétation de l'origine des enclaves homéogènes des roches volcaniques," *Comptes rendus*, CLIV, No. 10 (1912), pp. 630-35.

Basaltic breccias on the island of Reunion, about 300 miles east of Madagascar, are cut by dikes and sills of syenite, gabbro, and peridotite, clearly exposed in mountain amphitheaters.

The prevailing type of syenite consists for the most part of various alkali-feldspars, accompanied by alkaline pyroxenes and amphiboles. A scarcer variety contains biotite and a little plagioclase. The gabbros vary in composition: some contain both augite and olivine; those with olivine alone pass to a variety with very basic plagioclase and finally to peridotite; some of the gabbro is essexitic in character. The peridotite is chiefly dunite, but this passes to wehrlite by addition of diopside. The most basic of the intrusives are the oldest. Their chemical relation to the volcanic rocks is not known, except that some of the gabbro is almost identical in composition with some of the basalt.

This occurrence affords a striking proof that coarsely granular rocks have solidified at a depth of only a few hundred meters, in volcanic rocks of Tertiary—probably late Tertiary—age. The author infers that the influence of depth on crystallization has been greatly exaggerated, and that, while a thick cover may be favorable, it is by no means essential to the development of granular texture. He believes that granular rocks may be crystallizing at the present time in the flanks of active volcanoes. In the Reunion locality, he sees no confirmation of Harker's hypothesis that the normal order of igneous manifestations is: (1) volcanic action, (2) plutonic intrusions, (3) small intrusions. He considers the volcanic rocks and the small intrusions contemporaneous.

The author also sees in this locality a demonstration that certain "homogeneous inclusions" in volcanic rocks have been formed by differentiation of the magma prior to eruption, with the result that distinct geologic bodies are formed, fragments of which are loosened and brought to the surface by the ascending lava.

F. C. CALKINS

LACROIX, A. *Discours prononcé a la séance de clôture du congrès. Congrès des Sociétés Savantes à Paris, 1912.* Pp. 20.

A study of the volcanoes of Madagascar.

LACROIX, A. "Sur la constitution minéralogique des volcans de l'île de la Réunion," *Comptes rendus*, CLV (1912), 538-44.

From a single volcano and a single magma there have been erupted subalkaline and alkaline rocks, rocks which had long been considered as necessarily having independent origins and localized in distinct regions of the world (Atlantic and Pacific provinces). Nineteen analyses are given.

A. J.

LACROIX, A. "Un voyage au pays des Béryls (Madagascar). La Géographie," *Bull. Soc. Geog.*, XXVI (1912), 285-96.

A popular account of the minerals of Madagascar.

LACROIX, A. *Les richesses minérales de Madagascar.* Conférence faite à l'Ecole Coloniale le 22 Déc., 1912. Paris, 1913. Pp. 10.

LEISS, C. "Ueber zwei neue Mikroskope für petrographische und kristalloptische Studien," *Zeitschr. f. Kryst.*, XLIX (1911).

Describes two new microscopes with nicol prisms connected by a rigid bar. The first is after de Souza-Brandão and was originally described and illustrated in 1903 in the report of the geological survey of Portugal. Besides the attachments usual in a large petrographic microscope, this instrument has a stage which may be tilted to any angle, and an Abbe illuminating apparatus. The second, with a similar bar connection, is after Wright, and was first described in 1910. In this, likewise, the illuminating apparatus is after Abbe. A compensator ocular is permanently attached to the tube.

A. J.

LEISS, C. "Neues petrographisches Mikroskop für die Theodolit-Methode," *Centralbl. f. Min., etc.*, 1912, 733-36.

Describes a microscope which combines in itself a von Fedorow stage and a petrographic microscope with simultaneously rotating nicols.

The universal stage in this instrument, however, is considerably larger than in the detachable stage, being capable of taking sections 28×48 mm., thus doing away with the necessity of using circular sections.

A. J.

LOEWINSON-LESSING, F. "Beiträge zur Systematik der Eruptivgesteine, I." *Tiré d. Ann. d. Inst. Polyt. Pierre le Grand a St. Pétersbourg*, XV (1911), 229-43.

After a period of ten years, the author resumes his critical studies on the nomenclature and classification of igneous rocks, and proposes to issue a continuation of his former series of papers which was published in *Tschermak's Mittheilungen* in 1889-1902. The paper here reviewed is the first of the new series, unfortunately printed in the Russian language and consequently unavailable, except so far as the short résumé in German goes, to the majority of the petrologists in this country.

The writer discusses first the transition members of the effusive rocks between those from the alkali and from the alkali-earth magmas, and second, the absence of mono-mineral rocks among the effusives. He believes this absence to be a proof that the formation of eutectic and mono-mineral differentiation rocks takes place only in deep-seated magmas. That they do not reach the surface as effusives he thinks may be due to their viscosity and high melting-point, or that they are more active in assimilating the country rocks and, therefore, in the course of their eruption, always become changed in composition.

ALBERT JOHANNSEN

LOUDERBACK, GEORGE DAVIS. "The Monterey Series in California," *Bull. Dept. Geol. Univ. Cal.*, VII (1913), 177-241.

LOUGHLIN, G. F. "Contribution to the Geology of the Boston and Norfolk Basins, Massachusetts. I. The Structural Relations between the Quincy Granite and the Adjacent Sedimentary Formations," *Amer. Jour. Sci.*, XXXII (1911), 17-32.

The igneous rocks in the area studied include an altered biotite granite series, an older felsite series, the Quincy alkaline granite series, and alkaline felsite. The sediments are much folded and include the conglomerates, sandstones, and slates of the Boston and Norfolk basins.

A. J.